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*"Western Treasure -- Deep, Wet Snow"*

FEDERAL-STATE COOPERATIVE  
SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for

RIO GRANDE DRAINAGE BASIN

APRIL 1, 1948

By

Division of Irrigation, Soil Conservation Service  
United States Department of Agriculture  
and  
Colorado Agricultural Experiment Station

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Data included in this report were obtained by the agencies named above in cooperation with the U. S. Forest Service, National Park Service, State Engineers of Colorado and New Mexico and other Federal, State and local organizations.



April 1, 1948  
WATER SUPPLY OUTLOOK  
RIO GRANDE AND CANADIAN DRAINAGE BASINS

The outlook for water supply in irrigated areas served by the Rio Grande and its tributaries is good to excellent. Snow water content on some courses is twice that measured a year ago. Soil moisture penetration in San Luis Valley and northern New Mexico is very good. Reservoir storage in New Mexico is low but will be higher at season's end. Similar snow conditions exist over the headwaters of the Pecos and Canadian Rivers. Soil moisture is extremely deficient in the Carlsbad area.

RIO GRANDE

Snow cover in the San Luis valley as shown by April 1 snow surveys is well above normal on most courses. On the main stem of the Rio Grande and Alamosa Rivers, the prospects for summer runoff are unusually good. The snow is gone from the valley floor but the foothills are still snow covered, with heavy snow at medium elevations. The deficiency of snow at Cumbres Pass still exists but the flow of the Conejos river will be ten percent in excess of normal. For streams originating on the west slope of Sangre de Cristo range the summer runoff will be about 20 percent over last year. Precipitation in the valley has been much above average during the winter months. Soil moisture penetration is good. Stream flow is above normal. Reservoir storage is about average and much above April 1, 1947. Discharge of the Rio Grande above Del Norte is expected to be 850,000 acre-feet as compared to 530,000 during the 1947 season.

Similar snow conditions exist over the headwaters of Rio Grande tributaries in northern New Mexico. A deficiency in snow cover does exist at higher elevations on the Chama River at Cumbres Pass and on the Divide between El Rito and Canjilon. However, relatively heavy low snow should bring the flow of this stream to near normal. Valley precipitation in the Northern and Middle Rio Grande areas has been normal or above. Soil moisture conditions are good. Storage in El Vado Reservoir is now 26,800 acre-feet as compared with 41,000 a year ago but is filling rapidly. The combined storage in Elephant Butte and Caballo reservoirs is now 574,000 acre-feet, last year on April 1 it was 775,000 acre-feet. Storage in these reservoirs should be considerably higher at the end of the season. Soil moisture and crop conditions in the lower Rio Grande area are normal.

Snow cover on the headwaters of the Pecos River, Tesuque and Santa Fe Creeks is well above normal and substantially in excess of April 1947. Precipitation at lower elevations in the Santa Fe area has been above normal. Storage in Alamogordo, McMillan and Avalon reservoirs is now 41,600 acre-feet, which is the same as a year ago. However, soil moisture and crop conditions in the Carlsbad area are reported as poor.

CANADIAN RIVER

On the tributaries of the Canadian River the water stored in the snow is 100 percent above last year and 50 percent above normal. Storage in Conchas reservoir is now 371,000 acre-feet, slightly more than a year ago. Soil moisture and crop conditions on the Tucumcari project are described as good.



# RIO GRANDE DRAINAGE BASIN

## STREAM FLOW FORECASTS, April 1, 1948

| Basin and Stream           | April-September, inclusive, Streamflow Thousands Acre Feet |                  |                |         | 10-year avg.<br>1937-1946 |
|----------------------------|--|------------------|----------------|---------|---------------------------|
|                            | Forecast<br>1948   | Measured<br>1947 | Runoff<br>1946 | 1945    |                           |
| <u>RIO GRANDE</u>          |  |                  |                |         |                           |
| South Fork at South Fork   | 175,000  |                  | 132,000        | 123,000 | 128,900                   |
| Rio Grande at Del Norte    | 850,000  | 530,000          | 347,000        | 467,000 | 550,000                   |
| Alamosa above Terrace Res. | 110,000  | 68,500           | 39,500         | 77,000  | 77,000                    |
| Conejos at Mogote          | 250,000  | 176,000          | 124,600        | 221,000 | 225,000                   |
| Gulebra at San Luis        | 50,000   | 43,000           | 16,000         | 39,000  | 38,000                    |
| Chama at Park View         | 225,000  |                  | 79,000         | 243,000 | 246,000                   |
| Taos at Los Cordovas       | 85,000   |                  |                | 65,000  | 49,000                    |
| Embudo Creek at Dixon      | 135,000  |                  | 18,000         | 65,000  | 66,000                    |
| Rio Grande at Otcwi Bridge | 1,200,000  |                  | 204,000        | 874,000 | 960,000                   |
| Rio Grande at San Marcial  | 1,050,000  |                  | 57,000         | 593,000 | 805,000                   |
| Pecos at Pecos             | 120,000  |                  | 24,720         | 69,000  | 71,000                    |



SNOW SURVEYS AND IRRIGATION WATER FORECASTS  
RIO GRANDE BASIN

STATUS OF RESERVOIR STORAGE, APRIL 1, 1948

| STREAM         | RESERVOIR       | USABLE CAPACITY<br>1000 A.F. | THOUSANDS OF ACRE FEET IN STORAGE |       |        |        |        | 10-year Ave.<br>1937-46 |
|----------------|-----------------|------------------------------|-----------------------------------|-------|--------|--------|--------|-------------------------|
|                |                 |                              | About April 1                     |       |        |        |        |                         |
|                |                 |                              | 1948                              | 1947  | 1946   | 1945   |        |                         |
| RIO GRANDE     | Rio Grande      | 45.8                         | 24.2                              | 6.9   | 6.4    | 21.4   | 16.9   |                         |
|                | Santa Maria     | 45.0                         | 5.7                               | 5.5   | 7.5    | 11.8   | 10.1   |                         |
|                | Sanchez         | 103.2                        | 9.2                               | 6.7   | 13.1   | 9.4    | 17.2   |                         |
|                | Terrace         | 17.7                         | 6.0                               | 3.6   | 2.2    | 3.7    | 3.9    |                         |
|                | Continental     | 26.7                         | --                                | 1.2   | 7.6    | 17.7   | 6.7    |                         |
|                | Elephant Butte  | 2273.7                       | 397.6                             | 512.3 | 1029.9 | 1223.9 | 1169.1 |                         |
|                | Caballo         | 365.0                        | 177.0                             | 262.8 | 247.9  | 281.0  | 174.3  |                         |
| CHAMA RIVER    | El Vado         | 226.0                        | 26.8                              | 41.0  | 95.6   | 98.6   | 62.0   |                         |
| CANADIAN RIVER | Conchas         | 600.0                        | 371.0                             | 364.9 | 341.5  | 346.9  | 236.6  |                         |
| PECOS RIVER    | Alamogordo      | 148.0                        | 35.6                              | 35.6  | 40.0   | 45.4   | 61.9   |                         |
|                | McMillan-Avalon | 45.1                         | 6.0                               | 4.7   | 5.0    | 6.5    | 22.7   |                         |



## SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for  
RIO GRANDE BASIN

April 1, 1948

SUMMARY OF APRIL 1 SNOW SURVEYS AND COMPARISON OF DATA WITH THAT OF PREVIOUS YEARS BY  
WATERSHEDS

| WATERSHEDS       | Snow Depth              |      | Water Content |                         | Number<br>Courses<br>in<br>Average | Snow Density |         | 1948 Water Content in<br>percent of |         |      |
|------------------|-------------------------|------|---------------|-------------------------|------------------------------------|--------------|---------|-------------------------------------|---------|------|
|                  | Twelve<br>year<br>Avg.* | 1947 | 1948          | Twelve<br>Year<br>Avg.* |                                    | 1947         | 1948    | Twelve Year<br>Avg.*                | 1947    |      |
|                  | In.                     | In.  | In.           | In.                     |                                    | Percent      | Percent | Percent                             | Percent |      |
| Rio Grande       | 27.7                    | 18.5 | 38.7          | 9.3                     | 22                                 | 74           | 34      | 32                                  | 133     | 200  |
| Upper Rio Grande | 40.0                    | 27.4 | 59.6          | 13.3                    | 3                                  | 33           | 33      | 34                                  | 154     | 225  |
| Alamosa River    | 21.4                    | 13.3 | 35.3          | 5.9                     | 1                                  | 28           | 24      | 29                                  | 175     | 322  |
| Conejos River    | 45.8                    | 28.6 | 49.4          | 16.2                    | 2                                  | 35           | 34      | 32                                  | 97      | 161  |
| Culebra River    | 35.5                    | 37.7 | 41.3          | 10.9                    | 1                                  | 31           | 30      | 33                                  | 126     | 120  |
| Chama River      | 37.1                    | 25.2 | 39.8          | 13.6                    | 5                                  | 37           | 36      | 35                                  | 101     | 153  |
| Rio Taos         | 19.9                    | 17.7 | 34.5          | 6.9                     | 1                                  | 35           | 51      | 29                                  | 143     | 110  |
| Embudo Creek     | 29.8                    | 20.7 | 44.9          | 9.2                     | 2                                  | 31           | 30      | 27                                  | 133     | 193  |
| Pecos River      | 13.2                    | 2.0  | 26.6          | 4.2                     | 3                                  | 32           | 30      | 29                                  | 181     | 1268 |
| Canadian River   | 22.5                    | 16.8 | 36.5          | 7.0                     | 4                                  | 31           | 31      | 29                                  | 150     | 202  |

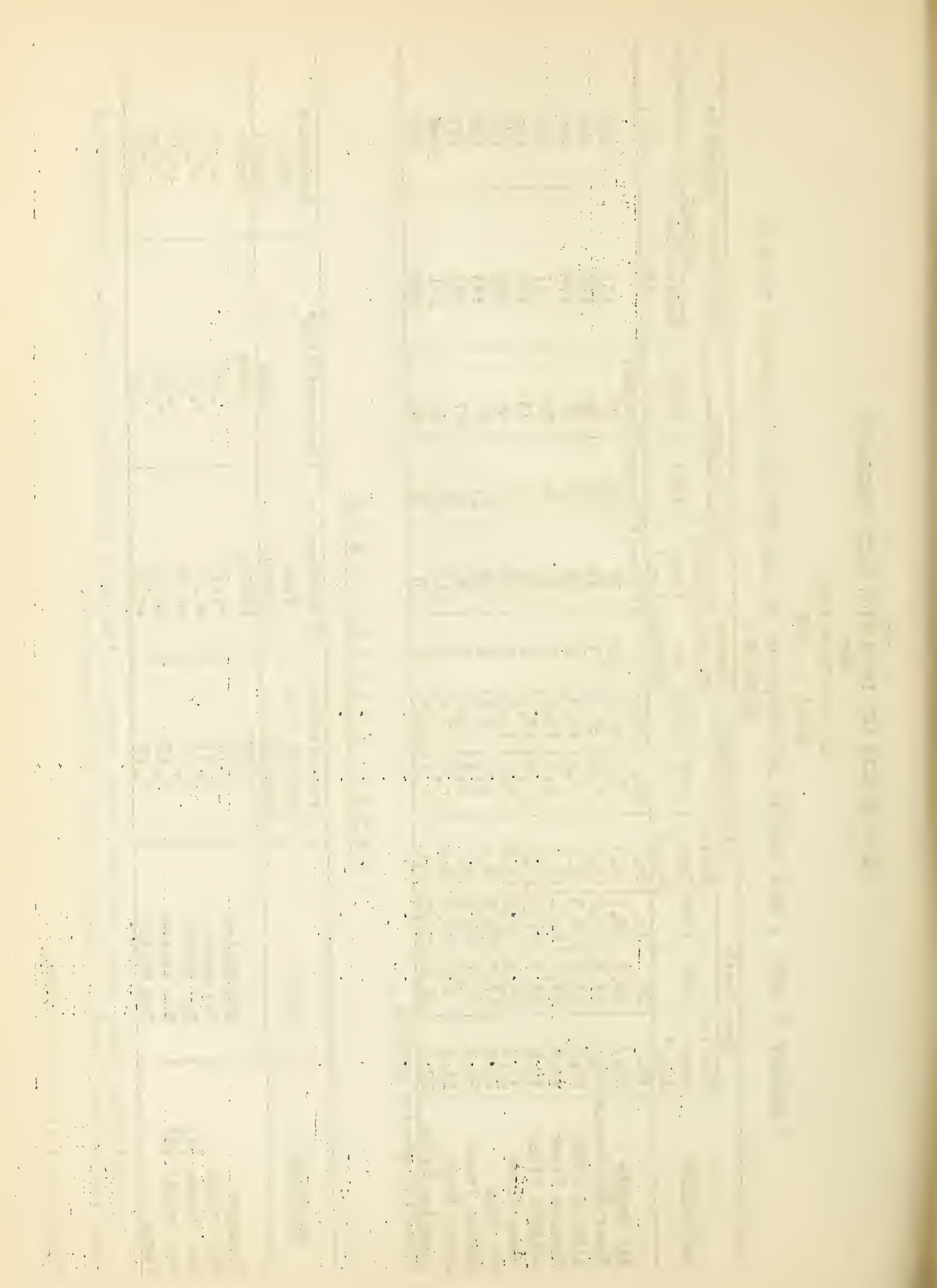
\*Some for shorter periods

## P R E C I P I T A T I O N   D A T A

| WATERSHED      | STATE      | Precipitation            | Departure      | Precipitation* | Departure      |
|----------------|------------|--------------------------|----------------|----------------|----------------|
|                |            | October 1 to<br>March 31 | from<br>Normal | March          | from<br>Normal |
|                |            | Inches                   | Inches         | Inches         | Inches         |
| Canadian       | New Mexico | 5.75                     | +1.74          | 1.18           | +0.43          |
| Rio Grande     | Colorado   | 5.87                     | +0.45          | 1.27           | +0.01          |
| Rio Grande (N) | New Mexico | 7.36                     | +0.86          | 1.41           | +0.17          |
| Rio Grande (S) | New Mexico | 4.17                     | +0.39          | 0.35           | -0.25          |
| Pecos          | New Mexico | 4.78                     | +0.34          | 0.58           | -0.17          |

Precipitation during March was above normal except on the Pecos and Southern Rio Grande. The accumulated precipitation since October 1 was above normal on all watersheds.

\*March precipitation tentative.



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RIO GRANDE DRAINAGE SNOW SURVEYS  
April 1, 1948

| DRAINAGE BASIN<br>and<br>SNOW COURSE | LOCATION            |         |                    |                      | SNOW COVER MEASUREMENTS |                      |                           |                        |      |      |                    |                               |  |
|--------------------------------------|---------------------|---------|--------------------|----------------------|-------------------------|----------------------|---------------------------|------------------------|------|------|--------------------|-------------------------------|--|
|                                      | No.<br>and<br>State | Sec.    | Twp.<br>or<br>Lat. | Range<br>or<br>Long. | Elev.                   | Date<br>of<br>Survey | Snow<br>Depth<br>(Inches) | Water Content (Inches) |      |      | Years of<br>Record | Fast Record                   |  |
|                                      |                     |         |                    |                      |                         |                      |                           | 1948                   | 1947 | 1946 |                    | Av. Water<br>Content (Inches) |  |
|                                      |                     |         |                    |                      |                         | RIO GRANDE           |                           |                        |      |      |                    |                               |  |
| Wolf Creek Pass                      | 26                  | Colo.   | 37N                | 2E                   | 10000                   | 3/31                 | 106.0                     | 39.3                   | 20.7 | 12.7 | 13                 | 29.7                          |  |
| Upper Rio Grande                     | 27                  | "       | 40N                | 4W                   | 9350                    | 3/30                 | 44.2                      | 14.3                   | 4.7  | 6.2  | 13                 | 6.2                           |  |
| Silver Lakes                         | 47                  | "       | 36N                | 5E                   | 9600                    | 4/1                  | 35.3                      | 10.3                   | 3.2  | 1.4  | 12                 | 5.9                           |  |
| River Springs                        | 49                  | "       | 33N                | 6E                   | 9300                    | 4/1                  | 32.9                      | 9.7                    | 4.2  | 1.6  | 12                 | 7.1                           |  |
| LaVeta Pass #2                       | 74                  | "       | 28S                | 70W                  | 9300                    | 4/1                  | 42.6                      | 14.6                   | 8.2  | 4.9  | 13                 | 8.3                           |  |
| Summitville                          | 76                  | "       | 37N                | 11500                |                         |                      |                           |                        | 18.2 | 12.2 |                    |                               |  |
| Cumbres Pass #2                      | 77                  | "       | 32N                | 4E                   | 11500                   | 2/29                 | 65.9                      | 21.6                   | 15.2 | 10.7 | 13                 | 25.2                          |  |
| Santa Maria                          | 80                  | "       | 41N                | 2W                   | 9700                    | 3/30                 | 28.7                      | 8.0                    | 2.0  | 0.0  | 10                 | 4.1                           |  |
| Culebra                              | 82                  | "       | 37.2N              | 105.2W               | 10000                   | 4/1                  | 41.3                      | 13.7                   | 11.4 | 4.5  | 9                  | 10.9                          |  |
| Fort Garland                         | 84                  | "       | 29N                | 72W                  | 8200                    | 4/4                  | 15.8                      | 5.0                    | 0.0  | 0.0  | 9                  | 3.2                           |  |
| Red River                            | 1                   | N. Mex. | 28N                | 15E                  | 9500                    | 4/1                  | 29.0                      | 0.0                    | 6.3  | 1.3  | 12                 | 8.7                           |  |
| Taos Canyon                          | 2                   | "       | 25N                | 15E                  | 9000                    | 4/1                  | 34.5                      | 9.9                    | 9.0  | 3.2  | 12                 | 6.9                           |  |
| Aspen Grove                          | 4                   | "       | 18N                | 10E                  | 9100                    | 4/2                  | 22.7                      | 7.3                    | 0.7  | 1.4  | 12                 | 3.9                           |  |
| Lee Ranch                            | 5                   | "       | 18N                | 4E                   | 9050                    | 4/1                  | 42.6                      | 13.4                   | 2.6  | 1.2  | 12                 | 7.9                           |  |
| Canjilon                             | 6                   | "       | 25N                | 6E                   | 9500                    | 4/1                  | 40.7                      | 14.3                   | 20.1 | 12.1 | 12                 | 21.9                          |  |
| Hematite Park*                       | 9                   | "       | 28N                | 15E                  | 9500                    | 4/1                  | 30.3                      | 9.5                    | 3.9  | 0.3  | 12                 | 5.7                           |  |
| Tres Ritos                           | 12                  | "       | 22N                | 13E                  | 9000                    | 4/1                  | 37.2                      | 9.3                    | 3.3  | 2.1  | 11                 | 5.5                           |  |
| Pay Role                             | 15                  | "       | 28N                | 7E                   | 9700                    | 4/1                  | 45.8                      | 15.1                   | 5.4  | 3.5  | 9                  | 9.4                           |  |
| Chama Divide                         | 17                  | "       | 36.9N              | 106.7W               | 7750                    | 4/3                  | 10.0                      | 5.2                    | 0.0  | 0.0  | 9                  | 2.8                           |  |
| Chamita                              | 18                  | "       | 36.9N              | 106.7W               | 8500                    | 4/3                  | 36.3                      | 12.6                   | 4.2  | 2.0  | 7                  | 8.6                           |  |
| Cordova                              | 19                  | "       | 22N                | 13E                  | 10100                   | 4/1                  | 52.6                      | 15.2                   | 9.3  | 10.0 | 7                  | 13.0                          |  |
| Panchuela #2                         | 20                  | "       | 19N                | 12E                  | 8300                    | 4/1                  | 26.5                      | 4.8                    | 0.3  | 0.0  | 12                 | 2.2                           |  |
| Big Tesuque                          | 21                  | "       | 18N                | 11E                  | 10000                   | 4/2                  | 30.8                      | 10.7                   | 0.7  | 3.1  | 7                  | 6.6                           |  |
| Elk Cabin                            | 24                  | "       | 18N                | 11E                  | 8250                    |                      |                           |                        |      |      |                    |                               |  |
| Gallinas                             | 25                  | "       | 18N                | 14E                  | 8700                    | 3/28                 | 12.9                      | 3.9                    | 6.2  | 3.8  | 1                  | 9.3                           |  |
|                                      |                     |         |                    |                      |                         |                      | 38.7                      | 12.4                   |      |      |                    |                               |  |
|                                      |                     |         |                    |                      |                         |                      |                           |                        |      |      |                    |                               |  |

Average for Drainage

\*On adjacent drainage

# 1. Introduction

The purpose of this study is to investigate the effects of various factors on the growth of plants.

The first factor to be examined is the amount of light received by the plants.

The second factor to be examined is the amount of water received by the plants.

The third factor to be examined is the amount of fertilizer received by the plants.

The fourth factor to be examined is the amount of carbon dioxide received by the plants.

The fifth factor to be examined is the amount of oxygen received by the plants.

The sixth factor to be examined is the amount of nitrogen received by the plants.

The seventh factor to be examined is the amount of phosphorus received by the plants.

The eighth factor to be examined is the amount of potassium received by the plants.

The ninth factor to be examined is the amount of calcium received by the plants.

The tenth factor to be examined is the amount of magnesium received by the plants.

The eleventh factor to be examined is the amount of iron received by the plants.

The twelfth factor to be examined is the amount of zinc received by the plants.

The thirteenth factor to be examined is the amount of copper received by the plants.

The fourteenth factor to be examined is the amount of manganese received by the plants.

# RIO GRANDE DRAINAGE SNOW SURVEYS April 1, 1948

| LOCATION                                  |                     |        |                    | SNOW COVER MEASUREMENTS |       |                      |                           |                       |      |      |                       |   |
|---|---------------------|--------|--------------------|-------------------------|-------|----------------------|---------------------------|-----------------------|------|------|-----------------------|---|
| DRAINAGE BASIN<br>and<br>SNOW COURSE      | No.<br>and<br>State | Sec.   | Twp.<br>or<br>Lat. | Range<br>or<br>Long.    | Elev. | Date<br>of<br>Survey | Snow<br>Depth<br>(Inches) | Water Content(Inches) |      |      | Years<br>of<br>Record | Past Record<br>Av. Water<br>content<br>(Inches) |
|   |                     |        |                    |                         |       |                      |                           | 1943                  | 1946 | 1947 |                       |   |
| RIO GRANDE TRIBUTARIES IN SAN LUIS VALLEY |                     |        |                    |                         |       |                      |                           |                       |      |      |                       |   |
| UPPER RIO GRANDE                          |                     |        |                    |                         |       |                      |                           |                       |      |      |                       |   |
| Wolf Creek Pass                           | 26                  | 4      | 37N                | 2E                      | 10000 | 3/31                 | 106.0                     | 39.3                  | 20.7 | 12.7 | 13                    | 29.7  |
| Upper Rio Grande                          | 27                  | "      | 40N                | 4W                      | 9350  | 3/30                 | 44.2                      | 14.3                  | 4.7  | 6.2  | 13                    | 6.2   |
| Santa Maria                               | 80                  | "      | 41N                | 2W                      | 9700  | 3/30                 | 28.7                      | 8.0                   | 2.0  | 0.0  | 10                    | 4.1   |
|   |                     |        |                    | Average for drainage    |       |                      | 59.6                      | 20.5                  | 9.1  | 6.3  |                       | 13.3  |
| ALAMOSA RIVER                             |                     |        |                    |                         |       |                      |                           |                       |      |      |                       |   |
| Silver Lakes                              | 47                  | Colo.  | 36N                | 5E                      | 9600  | 4/1                  | 35.3                      | 10.3                  | 3.2  | 1.4  | 12                    | 5.9   |
| Summitville                               | 76                  | "      | 37N                | 4E                      | 11500 |                      | ---                       | ---                   | 18.2 | 12.2 |                       | ---   |
|   |                     |        |                    | Average for drainage    |       |                      | 35.3                      | 10.3                  | 3.2  | 1.4  |                       | ---   |
| CONAJOS RIVER                             |                     |        |                    |                         |       |                      |                           |                       |      |      |                       |   |
| River Springs                             | 49                  | Colo.  | 33N                | 6E                      | 9300  | 4/1                  | 32.9                      | 9.7                   | 4.2  | 1.6  | 12                    | 7.1   |
| Summitville                               | 76                  | "      | 37N                | 4E                      | 11500 |                      |                           |                       | 18.2 | 12.2 |                       |   |
| Cumbres Pass* #2                          | 77                  | "      | 32N                | 5E                      | 10000 | 3/29                 | 65.9                      | 21.6                  | 15.2 | 10.7 | 13                    | 25.2  |
|   |                     |        |                    | Average for drainage    |       |                      | 49.4                      | 15.6                  | 9.7  | 6.2  |                       | 16.2  |
| CULEBRA RIVER                             |                     |        |                    |                         |       |                      |                           |                       |      |      |                       |   |
| Culebra                                   | 82                  | Colo.  | 37.2N              | 105.2W                  | 10000 | 4/1                  | 41.3                      | 13.7                  | 11.4 | 4.5  | 9                     | 10.9  |
| RIO GRANDE TRIBUTARIES IN NEW MEXICO      |                     |        |                    |                         |       |                      |                           |                       |      |      |                       |   |
| CHAMA RIVER                               |                     |        |                    |                         |       |                      |                           |                       |      |      |                       |   |
| Cumbres Pass #2                           | 77                  | Colo.  | 32N                | 5E                      | 10000 | 3/29                 | 65.9                      | 21.6                  | 15.2 | 10.7 | 13                    | 25.2  |
| Canjilon                                  | 6                   | N.Mex. | 26N                | 6E                      | 9500  | 4/1                  | 40.7                      | 14.3                  | 20.1 | 12.1 | 12                    | 21.9  |
| Pay Role                                  | 15                  | "      | 28N                | 7E                      | 9700  | 4/1                  | 45.8                      | 15.1                  | 5.4  | 3.5  | 9                     | 9.4   |
| Chama Divide                              | 17                  | "      | 36.9N              | 106.7W                  | 7750  | 4/3                  | 10.0                      | 5.2                   | 0.0  | 0.0  | 9                     | 2.8   |
| Chamita                                   | 18                  | "      | 36.9N              | 106.7W                  | 8500  | 4/3                  | 36.3                      | 12.6                  | 4.2  | 2.0  | 7                     | 8.6   |
|   |                     |        |                    | Average for drainage    |       |                      | 39.8                      | 13.8                  | 9.0  | 5.7  |                       | 13.6  |
| *On adjacent drainage                     |                     |        |                    |                         |       |                      |                           |                       |      |      |                       |   |

\*On adjacent drainage

# MEMORANDUM

TO : THE SECRETARY OF THE ARMY

FROM : THE CHIEF OF STAFF

SUBJECT: [Illegible]

1. [Illegible]

2. [Illegible]

3. [Illegible]

4. [Illegible]

5. [Illegible]

6. [Illegible]

7. [Illegible]

[Illegible]

[Illegible]

[Illegible]

[Illegible]

[Illegible]

[Illegible]

[Illegible]

[Illegible]

[Illegible]

[Illegible]

[Illegible]

Approved: [Illegible]

Chief of Staff

Secretary

Adjutant General

Quartermaster

Medical Director

Chief of Chaplains

[Illegible]

RIO GRANDE DRAINAGE SNOW SURVEYS  
April 1, 1943

| LOCATION                             |                         |              |   | SNOW COVER MEASUREMENTS |                      |                        |                   |                    |                 |  |
|--------------------------------------|-------------------------|--------------|---|-------------------------|----------------------|------------------------|-------------------|--------------------|-----------------|--|
| No. and State                        | Sec.                    | Top. or Lat. | Range Elev. or Long.                          | Date of Survey          | Snow Depth (Inches)  | Water Content (Inches) |                   |                    | Years of Record | Past Record Av. Water Content (Inches) |
| RIO GRANDE TRIBUTARIES IN NEW MEXICO |                         |              |   |                         |                      |                        |                   |                    |                 |  |
| RIO TAOS                             |                         |              |   |                         |                      |                        |                   |                    |                 |  |
| Taos Canyon                          | 2 N.Mex. 10             | 25N          | 15E 9000                                      | 4/1                     | 34.5                 | 9.9                    | 9.0               | 3.2                | 12              | 6.9                                    |
| EMBUDO CREEK                         |                         |              |   |                         |                      |                        |                   |                    |                 |  |
| Tres Ritos Cordova                   | 12 N.Mex. 23<br>19 " 22 | 22N<br>22N   | 13E 9000<br>13E 10100<br>Average for drainage | 4/1<br>4/1              | 37.2<br>52.6<br>44.9 | 9.3<br>15.2<br>12.2    | 3.3<br>9.3<br>6.3 | 2.1<br>10.0<br>6.0 | 11<br>7         | 5.5<br>13.0<br>9.2                     |
| PECOS RIVER                          |                         |              |   |                         |                      |                        |                   |                    |                 |  |
| Aspen Grove*                         | 4 N.Mex. 12             | 18N          | 10E 9100                                      | 4/1                     | 22.7                 | 7.3                    | 0.7               | 1.4                | 12.             | 3.9                                    |
| Panchuela #2                         | 20 " 27                 | 19N          | 12E 8300                                      | 4/1                     | 26.5                 | 4.8                    | 0.3               | 0.0                | 12              | 2.2                                    |
| Big Tesuque*                         | 21 " 17                 | 18N          | 11E 10000                                     | 4/1                     | 30.8                 | 10.7                   | 0.7               | 3.1                | 7               | 6.6                                    |
| Gallinas                             | 25 " 31                 | 18N          | 14E 8700<br>Average for drainage              | 2/28                    | 12.9<br>26.6         | 3.9<br>7.6             | ---<br>0.6        | ---<br>1.5         | 1               | 4.2                                    |
| CANADIAN RIVER                       |                         |              |   |                         |                      |                        |                   |                    |                 |  |
| Hematite Park                        | 9 N.Mex. 8              | 28N          | 15E 9500                                      | 4/1                     | 30.3                 | 9.5                    | 3.9               | 0.3                | 12              | 5.7                                    |
| Ocate Mesa                           | 10 " 25                 | 24N          | 16E 9200                                      | 4/1                     | 26.0                 | 7.9                    | 4.4               | 1.2                | 12              | 3.9                                    |
| Tres Ritos*                          | 12 " 23                 | 22N          | 13E 9000                                      | 4/1                     | 37.2                 | 9.3                    | 3.3               | 2.1                | 11              | 5.5                                    |
| Cordova*                             | 19 " 22                 | 22N          | 13E 10100<br>Average for drainage             | 4/1                     | 52.6<br>36.5         | 15.2<br>10.5           | 9.3<br>5.2        | 10.0<br>3.4        | 7               | 13.0<br>7.0                            |

\*On adjacent drainage



The following organizations cooperate in the snow surveys and irrigation water supply forecasts for the Colorado, Missouri-Arkansas and Rio Grande watersheds by furnishing funds or services.

STATE

Colorado State Engineer  
Wyoming State Engineer  
Utah State Engineer  
New Mexico State Engineer  
Montana State Engineer  
Nebraska State Engineer  
Colorado Experiment Station  
Colorado Extension Service  
Montana Experiment Station  
Utah Experiment Station

FEDERAL

Department of Agriculture  
Forest Service  
Soil Conservation Service  
Department of Interior  
Bureau of Reclamation  
Geological Survey  
National Park Service  
Department of Commerce  
Weather Bureau  
War Department  
Army Engineer Corps

PUBLIC UTILITIES

Colorado Public Service Company  
Western Colorado Power Company  
Montana Power Company  
Public Service Company of New Mexico  
Denver and Rio Grande Western R. R. Company

MUNICIPALITIES

City of Bozeman  
City of Denver  
City of Boulder

WATER USERS ORGANIZATIONS

Poudre Valley Water Users' Association  
Arkansas Valley Ditch Association  
Colorado River Water Conservation District

IRRIGATION PROJECTS

Farmers Reservoir and Irrigation Company  
San Luis Valley Irrigation District  
Santa Maria Reservoir Company  
Costilla Land Company  
Uncompahgre Valley Water Users' Association  
Wyoming Development Company  
Goshen Irrigation District  
Kendrick Project  
Pathfinder Irrigation District  
Salt River Valley Water Users' Association  
San Carlos Irrigation and Drainage District  
Twin Lakes Reservoir and Canal Company

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